The NASA

LangleyEdge

NASA LANGLEY RESEARCH CENTER

NASA Langley Research Center is actively seeking partnerships and collaborations to commercialize its Templated Growth of Carbon Nanotubes technologies.

The Market Opportunities

- Low-cost method for growing aligned, carbon nanotubes
- Carbon nanotube electron field emitters
- Microwave amplifiers
- Flat panel, field-emission displays
- Thin-matrix addressable, flat panel displays
- Applications in high strength, lightweight, multifunctional structures

The Benefits

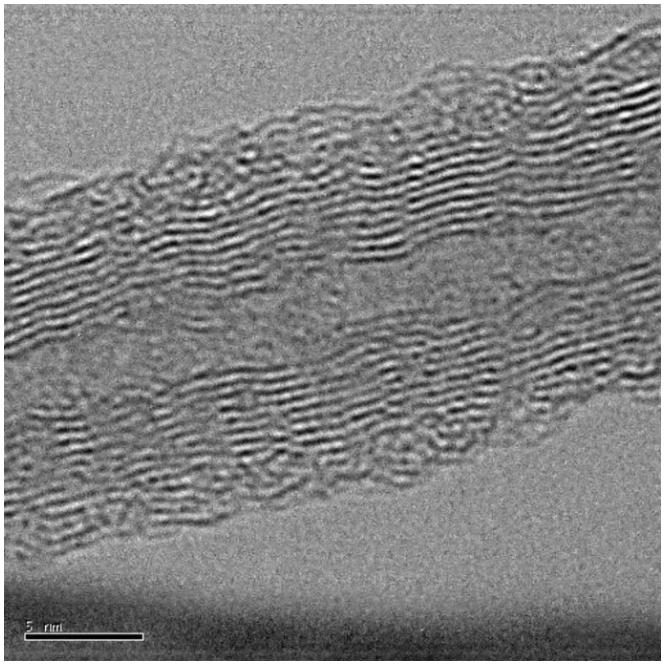
- Template and precursor starter materials are inexpensive and temperatures required to complete the fabrication of the templated carbon nanotubes are achievable by furnace ovens that are easily accessible
- Templated carbon nanotubes could be used for reinforcement in structural composites

The Technology

Carbon nanotubes are considered the material of the future because of their combination of structural and electrical characteristics. Obstacles for fulfilling their potential is the inability to manufacture batches of these materials with uniform properties. Properties that cannot be controlled at this time include the diameter of the carbon nanotube and purity. This invention synthesizes carbon nanotube/silica nanocomposites via a templating method to control carbon

Templated Growth of Carbon Nanotubes

Controlled diameters of carbon nanotubes



TEM image of templated multiwall carbon nanotubes

nanotube diameter. The carbon nanotubes are isolated by removing the silica framework. Unlike conventional carbon nanotube fabrication methods, metal catalyst contamination is not an issue with this method.

This invention could lead to a low-cost method for growing aligned carbon nanotubes with controlled diameters.

Additional Information

To discuss in detail how this technology can profit you and your business, please contact:

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